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Title

Outcomes of Physicians' Communication Goals During Patient Interactions.

Permalink

<https://escholarship.org/uc/item/2733q23s>

Journal

Health communication, 36(7)

ISSN

1041-0236

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Publication Date

2021-06-01

DOI

10.1080/10410236.2020.1719321

Peer reviewed

Outcomes of Physicians' Communication Goals During Patient Interactions

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Outcomes of Physicians' Communication Goals During Patient Interactions

During healthcare visits, physicians may set communication goals such as providing their patient with information about treatment; however, no recommendations exist regarding which goals physicians should prioritize during their often-brief interactions with patients. Two studies examined five communication goals (providing information, reducing distress, increasing patient satisfaction, increasing patient adherence, and encouraging hope) in the context of physician-patient interactions and their relationship with patient and physician outcomes. In Study 1, audio-recordings of physician-patient interactions were coded by research assistants for goal-related content. In Study 2, patients reported their physician's use of each goal during the interaction. In both studies, patients and physicians reported visit outcomes. Within-study meta-analyses suggested that the goal of reducing distress, but not the other goals, was consistently related to improved outcomes in Study 1. All goals were related to improved outcomes in Study 2. We then computed sample-size-weighted meta-analytic effects of each goal on each outcome across both studies. These results suggested that all of the goals had similar-sized positive relationships with patient and physician outcomes across studies. These findings suggest that physicians should generally approach consultations with communication goals in mind, but prioritizing efforts to reduce distress may be particularly beneficial.

Keywords: physician-patient communication, goals, benefits, adherence, satisfaction

Good physician-patient communication is critical for promoting positive patient outcomes. In fact, some researchers refer to communication as “the main ingredient in medical care” (Ong, De Haes, Hoos, & Lammes, 1995). The consequences of poor communication can include unmet expectations and unnecessary worry (Bell, Kravitz, Thom, Krupat, & Azari, 2002; Jackson & Kroenke, 2001), poor patient satisfaction, poor improvement in health status, poor information recall, and poor adherence to treatment recommendations (e.g., Martin, Williams, Haskard, & DiMatteo, 2005; Ong et al., 1995). Unfortunately, physician-patient communication often goes awry (Hack, Degner, & Parker, 2005). For example, one study with low back pain patients suggested that there were mismatches between patients and physicians in their approach to the illness (e.g., a biomedical approach vs. a biopsychosocial approach), expectations for treatment, and goals regarding pain and function (Allegretti, Borkan, Reis, & Griffiths, 2010). When physician and patient goals and expectations are mismatched, it can leave patients confused, with unwanted prescriptions and little motivation to adhere to treatment recommendations (Barry, Bradley, Britten, Stevenson, & Barber, 2000). Thus, it is critical to research ways to facilitate effective communication between patients and physicians. The current investigation examines one route to improve communication, namely the interaction goals physicians pursue during healthcare visits with patients.

Interaction Goals

To facilitate better physician-patient communication, it is important to first consider factors that influence communication broadly. Interpersonal communication is often a goal-driven process (Wilson & Caughlin, 2017). *Goals* are future states of affairs that one desires to achieve (Dillard, 1997) and can include *interaction goals* (i.e., goals for the outcome of an interaction between two or more people) when people communicate or work with others to achieve those future

states (Clark & Delia, 1979). Just as people generally approach interactions with goals in mind, patients and providers approach visits with interaction goals (Feldman-Stewart, Brundage, & Tishelman, 2005).

One broad viewpoint that is useful for understanding physicians' communication goals and their consequences is the multiple goals perspective (Caughlin, 2010), which suggests that people may have multiple goals when communicating with others, and that the interplay between these goals influences the success of an interaction (e.g., Wilson & Caughlin, 2017). Similarly, we suspect that physicians adopt multiple goals when communicating and that these goals have ramifications for the success of physician-patient communication.

One framework that approaches communication from a multiple-goals perspective and is specifically geared toward physician-patient communication is the bad news response model (Sweeny & Shepperd, 2007). Drawing from research in health and social psychology, the bad news response model identifies five patient-directed goals that physicians have for their interactions with patients¹ (i.e., providing information, encouraging hope, reducing distress, increasing patient satisfaction, and promoting adherence), all of which relate to better patient outcomes (Sweeny & Shepperd, 2007). Although the bad news response model was developed in the context of delivering bad news to patients, it provides a useful framework for understanding physician-patient communication more broadly. Indeed, the tenets of the model are supported by the broader physician-patient communication literature, and the goals it identifies are not specialized to the delivery of bad news, a point to which we turn next.

The first goal in the bad news response model is *providing information*. Providing clear and accurate information allows patients to make informed decisions about their treatment and

¹The bad news response model also includes the goal of physicians reducing their own discomfort, but as that goal addresses their own outcomes rather than their patients', it is not relevant to the current investigation.

relates to better health outcomes (e.g., Schillinger et al., 2003). The second and third communication goals are *encouraging hope* and *reducing distress*, which involve addressing patients' emotions. Research suggests that addressing patients' emotional concerns is associated with better outcomes, including more accurate diagnoses and lower psychological distress (Neumann et al., 2009; Ripamonti, Miccinesi, Pessi, Di Pede, & Ferrari, 2015). The fourth communication goal is *improving patient satisfaction*. Patient satisfaction commonly serves as an indicator of quality of healthcare (Säilä, Mattila, Kaila, Aalto, & Kaunonen, 2008) because higher patient satisfaction is related to a host of positive outcomes including lower mortality rates during surgery and lower re-admission rates following surgery (Pascoe, 1983; Tsai, Orav, & Jha, 2015). Finally, given the importance of patient adherence to physician recommendations (DiMatteo, 2004), the fifth goal is *promoting adherence*. Consistently, effective physician-patient communication fosters adherence in a variety of ways (e.g., Zolnierak & DiMatteo, 2009).

In the present work, we focus on these five goals in relation to four primary markers of successful communication: patients' perceptions of shared decision-making, patients' adherence intentions, patients' satisfaction with the physician, and physicians' satisfaction with the visit. First, shared decision making, or the active involvement of patients in decisions regarding care (Barry & Edgman-Levitan 2012), is linked to better outcomes including reductions in cost of care, greater concordance between patients' values and care, and increased patient knowledge (Oshima Lee & Emanuel, 2013). Second, intentions to adhere to treatment have also been linked to positive outcomes including actual adherence, lower medication costs, and lower subsequent hospitalization rates (Scholz et al., 2012; Sokol, McGuigan, Verbrugge, & Epstein, 2005). Third, patient satisfaction is an important marker of successful physician-patient communication. For

instance, patient satisfaction relates to lower odds of emergency room admission and better overall surgical quality (Fenton, Jerant, Bertakis, & Franks, 2012; Sacks et al., 2015). Finally, physician satisfaction represents another potential marker of successful communication. For example, physicians are more satisfied with visits when they perceive they were competent in addressing patients' problems and successfully communicated with the patient (Probst, Greenhouse, & Selassie, 1997). In sum, the literature suggests that shared decision-making, adherence intentions, patient satisfaction, and physician satisfaction are all linked to numerous benefits. As such, we focus on the relationship between the five physician communication goals and these outcomes here.

Overview

The primary goal of this paper is to evaluate the communication goals prioritized by physicians in the context of a medical visit, and the effect these goals have on patient outcomes. In Study 1, audio recordings of physician-patient interactions were coded by trained research assistants for goal-related content. We evaluated physicians' efforts to achieve each of the five communication goals during the medical visit: providing information, promoting adherence, increasing patient satisfaction, reducing patient distress, and encouraging hope. In Study 2, we evaluated physicians' efforts to achieve these five goals based on patients' ratings of the physician's goals during the conversation. In both studies, patients and physicians also provided self-reports about their outcomes. These self-reports were used to determine both physician outcomes (e.g., does making an effort to provide information relate to the physicians' satisfaction with the visit?) and patient outcomes as linked to these goals (e.g., does encouraging adherence during the interaction actually promote patient adherence intentions?).

Study 1: Method

Procedure

The 1994-98 Collaborative Research Outcomes Study conducted by the Bayer Institute for Health Care Communication (Haskard et al., 2008) collected audio-recordings and self-report data from 2196 patients (54% female) treated by 156 physicians (37% female) in three primary care settings (i.e., university medical centers, the Department of Veterans Affairs, and staff-model HMOs). Of these patients, 64% were receiving care for an ongoing health concern, 24% were receiving care for a new problem, and 12% were receiving care for both a new problem and ongoing health concern(s).

The goal of the original Bayer study was to assess a variety of outcomes related to physician-patient communication training (e.g., patient satisfaction, adherence intentions). The present report is restricted to a pre-training baseline to avoid potential confounding effects on our variables of interest. Patients completed questionnaires before and after a primary care visit that was audio-recorded, and physicians completed a questionnaire only after the visit. Due to time constraints and to keep the self-report questionnaires as brief as possible to reduce participant burden, single-item measures were used to assess patient outcomes. All single-item patient outcome scales have been used in past research (Andrews, Ghane, Legg, Tabuenca, & Sweeny, 2015; Falkenstein et al., 2016; Ghane et al., 2014; Huynh, Legg, Ghane, Tabuenca, & Sweeny, 2014; Legg & Sweeny, 2014; Tran & Sweeny, 2019). Items assessing each of the five communication goals were developed for the purposes of the present endeavor. We assigned each audio recording ($N = 2196$; $M_{duration} = 22.13$ minutes, $SD = 32.23$ minutes) a unique number identifying the physician, patient, and setting of the primary care visit.

Sample selection

Of the 2196 total baseline interactions, we selected the lowest, median, and highest income

patients for each of 100 randomly selected physicians. Past research suggests that physician-patient communication may differ depending on the socioeconomic status of the patient (e.g., Willems, De Maesschalck, Deveugele, Derese, & De Maeseneer, 2005). As such, we wanted to select patients from all socioeconomic backgrounds. A portion of all recordings (10%) were in Spanish, but we restricted analysis to English discussions only as our coders spoke English as their primary language. Reducing the sample to 300 patients improved the feasibility of coding and prevented coder fatigue. Due to technical problems that occurred during the coding process, three audio recordings (from three different physicians) were lost. Thus, the final sample included data from 100 physicians and 297 patients.

Sample characteristics

Patients were primarily female (57%), White (58%), and an average of 47.79 years old ($SD = 16.53$ years). Physicians were primarily male (39% female) and an average of 37.59 years old ($SD = 9.63$ years). Physicians were 47% White, 44% Asian, 7% Hispanic, and 2% African American.

Coding procedure

Coders were all college-aged women.² Coders received extensive in-person training, culminating in practice on three recordings to ensure consistency. Four coders coded each recording and each coder coded 100 audio recordings. Coders listened to a full interaction and then rated the interaction on all five goals. Coders received the recordings in a counter-balanced order to reduce fatigue effects (Haskard, Williams, DiMatteo, Heritage, & Rosenthal, 2008).

Measures

² The original intent of the Bayer study was to examine associations between physicians' vocal tone and patient outcomes. The coders in the Bayer study were restricted to women because some research suggests that women are more accurate judges of nonverbal behavior than men (Ambady, Hallahan, & Rosenthal, 1995).

Communication goal ratings

Coders used a 7-point scale (1 = *no effort*, 7 = *a lot of effort*) to rate the extent to which the physician put forth effort to provide information (“give the patient information”; $M = 5.45$, $SD = .89$, $ICC = .60$), promote adherence (“convince the patient to follow the doctor’s recommendations” $M = 4.80$, $SD = .1.02$, $ICC = .38$), increase patient satisfaction (“make sure the patient was satisfied with the visit” $M = 4.75$, $SD = 1.00$, $ICC = .28$), reduce patient distress (“make the patient feel less upset or worried” $M = 4.49$, $SD = 1.02$, $ICC = .35$), and encourage hope (“encourage the patient to be hopeful” $M = 4.04$, $SD = 1.13$, $ICC = .40$). Coders were trained to simply make a holistic judgment regarding the physician’s effort toward each goal based on the recordings and did not engage in any quantitative coding to assess effort (e.g., counting the number of times a physician used a particular word). Bivariate correlations of all communication goals are presented in Table 1.

Decisional control

Patients indicated the level of decisional control they experienced during the visit with a seven-item scale (e.g., “How often does the doctor who treated you today offer choices in your medical care?”; 1 = *very often*, 5 = *never*; $M = 3.79$, $SD = 1.00$, $\alpha = .90$).

Satisfaction with the physician

Patients indicated their satisfaction with the care they received from the physician with a four-item scale (e.g., personal manner, communication skills, technical skills, overall care; 1 = *poor*, 5 = *excellent*; $M = 4.48$, $SD = .76$, $\alpha = .97$).

Adherence intentions

Patients indicated their intentions to adhere to recommendations with a single item (“Do you intend to do what this doctor has asked you to do?”; 1 = *definitely no*, 5 = *definitely yes*; $M =$

4.70, $SD = .63$).

Physician rating of satisfaction with visit

Physicians indicated their satisfaction with the visit using a 20-item scale (Suchman, Roter, Green, Lipkin Jr, & The Collaborative Study Group of the American Academy on Physician and Patient, 1993), in which they indicated their agreement with each statement (e.g., “This was a very satisfying visit for me,” “My time was NOT well spent on this visit,” “I spent more time with this patient than I would have liked”; 1 = *strongly agree*, 5 = *strongly disagree*; $M = 5.16$, $SD = .41$, $\alpha = .86$).

Analysis

We used Mplus version 8.1 to conduct all analyses. To account for dependence of data within physicians, we used the cluster/complex analysis function nesting patients within physicians. Due to the high intercorrelations among the coded goals (see the bottom half of Table 1), and a desire to avoid model misspecification due to multicollinearity, we examined bivariate relationships between each goal and each outcome rather than using a regression-based approach (e.g., regression, multilevel modeling, structural equation modeling), to compare which goal was most predictive of our outcomes.

We also conducted a meta-analysis of all communication goals to determine whether any specific goal was significantly associated with all patient outcomes (see Goh, Hall, & Rosenthal, 2016 for a primer on within-project meta-analysis). Within study, we used Goh and colleagues’ “fully random effects” meta-analytic approach—allowing each estimate to equally inform the average within-study effect size. These within-study averages from the meta-analysis are presented in the second to last column of Table 2.

Study 1: Results

Bivariate relationships (correlations controlling for dependence of error) among patient-rated communication goals and patient- and physician-rated outcome variables, controlling for clustering within physician, are presented in Table 2. Given the exploratory nature of our endeavor, we focus here on statistically significant relationships.

Decisional control

No goal significantly predicted patients' decisional control.

Adherence intentions

No goal significantly predicted patients' adherence intentions.

Patient-rated satisfaction

All communication goals with the exception of providing information and promoting adherence were positively associated with patient satisfaction. That is, patients were more satisfied with their physician when the physician made a greater effort to reduce distress, increase satisfaction, and encourage hope.

Physician-rated satisfaction

Physicians were more satisfied with the visit when they made a greater effort to reduce distress. Physician satisfaction was not significantly related to efforts to provide information, promote adherence, encourage hope, or increase satisfaction.

Averages within study

Within Study 1, only the goal of reducing distress had a meta-analytic effect for which the 95% confidence interval did not include 0, suggesting that reducing distress was the only robustly important goal for improved outcomes.

Study 1: Discussion

Efforts to achieve communication goals were related to patient and physician outcomes. Patients

responded positively to physicians who displayed behavior suggesting they had goals to reduce their distress, encourage hope, and/or increase their satisfaction. Namely, these efforts were related to increased patient satisfaction with the visit. Physicians also reported more satisfaction with the visit when they put forth effort to reduce patient distress. However, none of the communication goals were related to patients' intentions to adhere to recommendations or patients' decisional control. A meta-analysis of the communication goals within this study revealed that reducing distress was robustly related to positive outcomes, suggesting that this goal may be particularly important for physicians to pursue.

Although Study 1 provided initial evidence for the importance of aiming to reduce patients' distress in healthcare interactions, this study was limited in that the goals were rated by coders. It is possible that patients who engage directly in conversations with their physicians may perceive their physicians to have different goals, particularly because they have access to both verbal and non-verbal cues expressed by their physician during the visit. Thus, Study 2 examined whether the relationships between communication goals and outcomes might differ when the goals are rated by patients themselves. In addition, past research suggests that physicians may prioritize different communication goals depending on the context of the visit. For example, a systematic review of surgeon-patient communication studies found that surgeons spend the majority of the interaction providing information and helping patients make decisions about treatment (Levinson, Hudak, & Tricco, 2013) whereas primary care physicians spend most of their time acquiring information from patients and coordinating care (Goodson, 2010). As such, Study 2 also examined whether the benefits of communication goals would extend to a surgical consultation.

Study 2: Method

Participants & procedure

Participants were patients ($N = 335$; 47% women; 56% Hispanic/Latinx; $M_{age} = 45.5$ years, $SD = 11.7$ years) at the Riverside University Health System Medical Center (RUHS) in Moreno Valley, CA. Data were collected between November 2011 and December 2012 as part of a larger project examining physician-patient communication in the context of surgery. All physicians ($N = 6$; 100% male; ethnicity and age unknown) seeing patients in the relevant clinic during the study period also consented to participate.

Patients between 18 and 90 years of age were eligible to participate in the study if they had an appointment for an initial surgical consultation and had been referred to the clinic by a primary care physician. Study materials were administered in English or Spanish, the two most common languages of patients in the clinic. Patients completed questionnaires before and after pre-surgical and post-surgical consultations (four time points). Physicians completed a questionnaire only after each visit (two time points). As in Study 1, we kept the questionnaires brief to reduce participant burden.

Measures

All patient measures used 10-point scales to facilitate patients' understanding of the response scale, given that 10-point scales are common in everyday life. Due to time constraints and to reduce participant burden, single-item measures were used to assess patient outcomes. All single-item patient outcome scales have been used in past research.³

Communication goal ratings

Patients rated how much effort the physician made to provide information ("give you information"; $M = 9.22$, $SD = 1.84$), promote adherence ("convince you to follow their

³Relevant papers available from Dr. Kate Sweeny, ksweeny@ucr.edu.

recommendations”; $M = 8.86$, $SD = 2.27$), increase satisfaction (“make you feel satisfied with the visit”; $M = 9.08$, $SD = 2.11$), reduce distress (“make you feel less worried or upset”; $M = 8.39$, $SD = 2.71$), and encourage hope (“encourage you to be hopeful”; $M = 8.84$, $SD = 2.31$; for all, 1 = *no effort at all*, 10 = *a lot of effort*).

Decisional control

We measured the amount of control patients experienced during the consultation with a single item (“How much control do you feel like you have over the decisions about your treatment?”; 1 = *a little control*, 10 = *total control*; $M = 7.06$, $SD = 3.66$).

Adherence intentions

We measured patients’ intentions to adhere to physician recommendations with a single item (“How likely are you to do exactly what the doctor(s) you saw today suggested?”; 1 = *definitely not*, 10 = *definitely will*; $M = 9.02$, $SD = 2.07$).

Satisfaction with physician

We measured patients’ satisfaction with the physician with a single item (“How much do you like the doctor(s) you saw today?”; 1 = *strongly dislike*, 10 = *like very much*; $M = 9.30$, $SD = 1.47$).

Physician rating of satisfaction with visit

Physicians rated the quality of the visit with the patient on a 7-point scale (1 = *very unproductive*, 7 = *very productive*; $M = 6.17$, $SD = .99$).

Study 2: Results

We use the same analytic approach as in Study 1, and all results appear in the bottom half of the Table 2 estimates. All communication goals positively predicted all patient outcomes (i.e., decisional control, adherence intentions, and patient-rated satisfaction). To the extent that

patients thought their physician made an effort to provide information, reduce distress, increase their satisfaction, promote adherence, and/or encourage hope, they perceived greater decisional control, intended to adhere to their physician's recommendations to a greater extent, and were more satisfied with their physician. No communication goal significantly predicted physicians' satisfaction with the visit. Within Study 2, all communication goals were meta-analytically associated with positive outcomes when averaged across all outcomes.

Meta-Analysis Across Studies

We conducted a sample-size-weighted meta-analysis of the goals across both studies (see Goh et al., 2016) to determine whether any specific goal was consistently related to outcomes, weighting each estimate by the sample size in the study. These across-study averages appear in the last column of Table 2. Combining evidence from Studies 1 and 2 suggested that all goals were significantly positively related to all outcomes. That is, all goals had a meta-analytic effect for which the 95% confidence interval did not include zero ($p < 0.05$), suggesting that simply having communication goals for the visit is important for both patient and physician outcomes. All relationships are bivariate associations (correlations) controlling for dependence of error.

General Discussion

In two studies, we examined whether communication goals that physicians might pursue during healthcare conversations predicted better patient and physician outcomes. In Study 1, coders listened to audio recordings of primary care visits and rated the efforts physicians put toward each of these communication goals. In Study 2, after a surgical consultation, patients reported the extent to which their physician made efforts to pursue these goals.

Examining the data meta-analytically across both studies suggests that all of the goals were associated with positive outcomes. However, individual associations between specific goals

and outcomes were more consistent in Study 2, in which patients rated the goals, than they were in Study 1, in which coders rated the goals. Specifically, all communication goals were associated with all patient outcomes in Study 2. By contrast, the picture was more mixed in Study 1. The goals of providing information and promoting adherence were not significantly related to any outcome, and no goal significantly predicted adherence intentions or decisional control. On the other hand, Study 1 also revealed the only significant relationship between a communication goal (reducing patient distress) and physician satisfaction with the visit.

Taking both studies together, reducing distress was the most consistent communication goal in terms of a significant positive association with patient outcomes. However, when examining the meta-analytic effects, the 95% confidence intervals for all goals contained the meta-analytic effect of all other goals, suggesting that each goal had about the same effect on the average outcome as did other goals.

At the outset of this endeavor, we did not expect that coder-rated interactions would produce weaker effects in predicting patient satisfaction than would patient-rated interactions. Nevertheless, it may be unsurprising for a few reasons. First, it is possible that coders, who were listening to audio recordings, missed critical non-verbal elements of the interaction. Indeed, non-verbal communications are important to positive physician-patient interactions (Pawlikowska, Zhang, Griffiths, van Dalen, & van der Vleuten, 2012). In contrast, it is also possible that coders were more objective than were patients. Whereas patients might have rated likable physicians positively in all domains, coders might have been better able to focus on the presence of specific communication goals. This distinction might also account for why physician satisfaction was not related to any of the communication goals in Study 2.

It is also possible that the differences we observed between patient- and coder-rated

interactions were due in part to the context of the visits. Primary care and surgical consultations differ in several ways. In particular, primary care visits are likely less emotionally distressing than surgical consultations. As such, we may have observed more robust correlations between goals and positive outcomes in the latter study because patients experienced more distress when thinking about surgery, and therefore physician communication goals were more meaningful.

Alternatively, the differences between patient-rated and coder-rated effects may have been due in part to our operationalization of the goals. For example, coders may have been influenced by the proportion of time physicians spent talking about a certain goal, whereas patients might have paid more attention to how empathetic physicians seemed. We operationalized goal possession with effort expended because we believed this was the most effective way to measure goals without requiring meta-cognitive processing of the physicians' thinking. However, communication researchers have operationalized goal possession differently, such as by assessing how important it is for participants to achieve a specific goal (Wilson, Aleman, & Leatham, 1998) and participants' attention to different aspects of an interaction, such as the emotional responses of the person they are interacting with (Scott & Caughlin, 2014). Other communication researchers have operationalized goal possession more indirectly, such as through participants' motivations for avoiding or approaching certain conversation topics (Donovan-Kicken & Caughlin, 2011). If we had operationalized goal possession as how important it seemed to the physician to achieve a specific goal or the degree to which the physician attended to a goal, it is possible that coder and patient ratings would share more similar outcomes.

Implications & Applications

To our knowledge, the current study represents the first to examine the five patient-directed

communication goals outlined in the bad news response model (Sweeny & Shepperd, 2007) in the broader context of physician-patient communication, rather than bad news delivery specifically. When analyzing the data meta-analytically, we found that all five goals were related to positive patient outcomes, suggesting the importance of having communication goals prior to visits. We examined these communication goals with two different sets of patients and in different medical contexts, which supports the robustness of our findings.

Our findings are consistent with the broader literature on physician-patient communication, which suggests that effective communication is associated with favorable outcomes such as increased patient satisfaction, adherence, and informed decision-making (Sweeny & Shepperd, 2007; Zachariae et al., 2003; Zolnieriek & DiMatteo, 2009). As such, these communication goals offer promising avenues for further research contributing to the physician-patient communication literature.

Although physician satisfaction was not related to any of the communication goals in Study 2, it was related to the goal of reducing patient distress in Study 1. Physicians are more satisfied when they feel they addressed patients' problems and successfully communicated with the patient (Probst et al., 1997). Thus, pursuing communication goals may be an avenue through which physicians can improve patient outcomes as well as their own satisfaction with these interactions, which could reduce physician burnout (e.g., Ramirez et al., 1995).

In sum, the results from the present work indicate that establishing and achieving communication goals is a promising strategy for promoting better patient outcomes. The goals of providing information, reducing distress, increasing satisfaction, promoting adherence, and encouraging hope were associated with patient outcomes across both studies, suggesting physicians may need to focus on multiple goals during their interactions with patients. When this

is not possible, prioritizing efforts to reduce distress may offer the most benefit.

Limitations and Future Directions

Our study had several limitations that should be addressed in future studies. First, we operationalized communication goals as effort expended toward each goal. We believe that this approach appropriately operationalizes perceived use of these goals, as asking a question like “to what extent do you think the physician had the goal of...” requires meta-cognitive processing of the physician’s thinking. Future studies can operationalize goals in other ways, including examining the extent to which a physician “attended to” certain goals during the visit, or determining whether differences in measurement might affect goal perceptions.

Second, we used single-item measures to assess most patient and physician outcomes. Although single-item measures are not ideal, we opted to use them because of strict time constraints and concerns about participant burden. Nevertheless, these studies bear replication with more extensive and well-validated measures. For example, when time allows, future studies could use the Short Assessment of Patient Satisfaction (Hawthorne, Sansoni, Hayes, Marosszeky, & Sansoni, 2014), the “intentions” subscale from the Adherence Determinants Questionnaire (DiMatteo et al., 1993), and the Shared Decision-Making Questionnaire (Kriston et al., 2010) to measure patient satisfaction, adherence intentions, and decisional control, respectively. Third, we assessed adherence intentions and not behavioral adherence. Intentions do not always translate into behavior, though they clearly represent a propensity for behavior (Sheeran & Webb, 2016), and numerous studies link adherence intentions to actual adherence (e.g., DiMatteo et al., 1993; Scholz et al., 2012). Nevertheless, future studies should employ longitudinal designs to examine the role of communication goals in predicting objectively-measured behavioral adherence.

Fourth, due to the correlational nature of our studies, we were unable to establish a causal relationship between communication goals and improved patient outcomes. Additionally, given the large correlation between all of the goals, it was not feasible to compare the relative associations of the goals with outcome measures using simultaneous regression. (i.e., because it would violate the multicollinearity assumption). As such, future studies should use experimental designs to randomly assign patients to experience different communication goals and compare their outcomes.

It is also important to note that there was clear variance in the size of the relationships between physician communication goals and patient outcomes across the two studies, such that the effect sizes in Study 2 were much larger than were those in Study 1. We attribute this variance in effect size primarily to coder effects. That is, in Study 1, physician goals were rated by objective coders listening to audio recordings. In Study 2, patients rated their own physician's goals. We suspect that the higher correlations observed in Study 2 resulted from common method variance: patients rated both physician communication goals as well as their own outcomes, thus raising the correlation between the two.

We think that both studies provide important estimates of the relationship between physician communication goals and patient outcomes, which is why we meta-analyzed them. The coders provided a perspective on the interaction that was unlikely to be influenced by a general (dis)liking of the physician and was informed by experience hearing multiple conversations. By contrast, the patients personally experienced their interaction with the physician and may have integrated non-verbal cues into their ratings of the goals. Given that both approaches provide useful information, we think a multi-method approach is warranted in future studies. Ideally, future studies would assess and compare physician goals as reported by the

physicians themselves, the patients, and via objective coding. This approach would allow researchers to assess whose perceptions are most important in predicting outcomes and provide an even more robust estimate of the relationship between communication goals and outcomes.

Although the present studies focused on the five communication goals from the bad news response model (Sweeny & Shepperd, 2007), relational goals may also be important for the physician-patient interaction. One such goal might consist of promoting trust, which has been linked to better disease management and greater satisfaction with care (Murray & McCrone, 2015). Furthermore, participants perceive communicative messages to be more competent when they employ relational goals such as expressing appreciation (Donovan-Kicken, Guinn, Romo, & Ciceraro, 2013). Thus, future studies should examine the potential relationships between relational goals and patient outcomes.

Conclusion

Although research on physician-patient communication decisively concludes that it is critical to important patient outcomes, prior work has not examined the extent to which various theoretically-derived communication goals influence patient outcomes. The present study suggests that multiple goals, but in particular the goal of reducing distress, are associated with positive patient outcomes and, to a lesser extent, positive physician outcomes. To maximize the often time-limited physician-patient interaction in a way that promotes patient satisfaction, perceptions of control, and adherence intentions, physicians should approach consultations with communication goals in mind.

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Table 1. Bivariate Associations Among Communication Goals

Study 1	Provide Information	Reduce Distress	Increase Satisfaction	Promote Adherence
Provide information	-			
Reduce distress	.68 [.62, .74]**	-		
Increase satisfaction	.66 [.59, .72]**	.84 [.81, .87]**	-	
Promote adherence	.79 [.74, .83]**	.73 [.68, .78]**	.74 [.68, .79]**	-
Encourage hope	.62 [.55, .69]**	.82 [.78, .85]**	.75 [.70, .80]**	.73 [.67, .78]**
Study 2				
Provide information	-			
Reduce distress	.42 [.33, .51]**	-		
Increase satisfaction	.61 [.54, .68]**	.51 [.43, .59]**	-	
Promote adherence	.54 [.46, .61]**	.47 [.38, .55]**	.61 [.54, .67]**	-
Encourage hope	.53 [.44, .60]**	.64 [.57, .70]**	.60 [.53, .67]**	.57 [.50, .64]**

⁺ $p < .10$, * $p < .05$, ** $p < .01$. Standardized estimates with 95% confidence interval in brackets. Correlations account for clustering of patients within physicians.

Table 2. Bivariate Associations Between Study Variables and Meta-Analytic Results

Study 1	Decisional Control	Patient Satisfaction	Adherence Intentions	Physician Satisfaction	Average Within Study	
Provide information	.06 [-.05, .18]	.10 [-.02, .22]	-.01 [-.16, .13]	.10 [-.03, .23]	.05 [-.05, .15]	
Reduce distress	.12 [.00, .25] ⁺	.12 [.01, .24] [*]	.05 [-.08, .17]	.17 [.06, .28] ^{**}	.09 [.00, .19]	
Increase satisfaction	.09 [-.04, .22]	.12 [.01, .24] [*]	.07 [-.05, .20]	.12 [-.01, .24] ⁺	.08 [-.02, .18]	
Promote adherence	-.003 [-.13, .12]	.10 [-.02, .22] ⁺	.04 [-.07, .15]	.08 [-.04, .21]	.04 [-.05, .14]	
Encourage hope	.11 [-.01, .22] ⁺	.12 [.00, .23] [*]	-.01 [-.14, .12]	.09 [-.03, .21]	.06 [-.04, .16]	
Study 2						Overall Average
Provide information	.23 [.16, .29] ^{**}	.46 [.39, .54] ^{**}	.27 [.08, .47] ^{**}	.07 [-.03, .16]	.21 [.12, .29]	.07 [.03, .11]
Reduce distress	.27 [.15, .38] ^{**}	.29 [.16, .42] ^{**}	.25 [.19, .31] ^{**}	.03 [-.09, .16]	.17 [.08, .25]	.10 [.06, .14]
Increase satisfaction	.27 [.12, .41] ^{**}	.45 [.28, .62] ^{**}	.24 [.07, .41] ^{**}	.01 [-.11, .13]	.19 [.07, .32]	.10 [.04, .15]
Promote adherence	.18 [.07, .30] ^{**}	.20 [.15, .25] ^{**}	.18 [.06, .30] ^{**}	.00 [-.09, .09]	.11 [.04, .19]	.05 [.02, .09]
Encourage hope	.34 [.21, .46] ^{**}	.33 [.21, .44] ^{**}	.24 [.12, .35] ^{**}	.05 [-.03, .12]	.19 [.10, .27]	.08 [.04, .12]

⁺ $p < .10$, ^{*} $p < .05$, ^{**} $p < .01$. Standardized estimates with 95% confidence interval in brackets. Correlations account for clustering of patients within physicians.